What is claimed is:

1. An arrangement for processing an electrical circuit substrate, comprising:

a work piece holder, adapted to hold and position the substrate;

a laser source including a diode-pumped, quality controlled, pulsed solid-state laser of a wavelength between 266 nm and 1064 nm, and adapted to emit laser radiation in the following ranges of values,

a pulse repetition rate of between 1 kHz and 1 MHz,

a pulse length of 30 ns to 200 ns, and

an average laser power of around 0.1 to approximately 5W;

a deflection unit arranged in a beam input of the laser, allowing deflection speeds of up to 600 mm/s;

an imaging unit; and

a controller adapted to operate the laser, depending on an application for the laser, with different combinations of average laser power and repetition rates.

2. An arrangement as claimed in claim 1, wherein the laser has a wavelength of between 350 and 550 nm.

3. An arrangement as claimed in claim 1, wherein the laser includes a first mode of operation to remove layers, in which it is operated with an average laser power of around 1 to 2 W and a repetition rate of around 60 to 80 kHz.

4. An arrangement as claimed in claim 1, wherein the laser includes an operating mode for drilling holes in metallic and dielectric layers of the circuit substrate, in which it is operated with an average laser power of 3 to 4 W and a repetition rate of 10 to 30 kHz.

5. An arrangement as claimed in claim 1, wherein the laser includes an operating mode to expose the photosensitive layers, in which it is operated with an average laser power in the order of magnitude of 100 mW and a repetition rate of 200 kHz to 1 MHz.

6. An arrangement as claimed in claim 1, wherein a galvanometer mirror unit is used as the deflection unit with a speed of deflection of 100 to 600 mm/s.

7. An arrangement as claimed in claim 1, wherein the laser is a UV laser with a 355 nm wavelength.

8. An arrangement as claimed in claim 2, wherein the laser includes a first mode of operation to remove layers, in which it is operated with an average laser power of around 1 to 2 W and a repetition rate of around 60 to 80 kHz.

9. An arrangement as claimed in claim 2, wherein the laser includes an operating mode for drilling holes in metallic and dielectric layers of the circuit substrate, in which it is operated with an average laser power of 3 to 4 W and a repetition rate of 10 to 30 kHz.

10. An arrangement as claimed in claim 3, wherein the laser includes a second operating mode for drilling holes in metallic and dielectric layers of the circuit substrate, in which it is operated with an average laser power of 3 to 4 W and a repetition rate of 10 to 30 kHz.

11. An arrangement as claimed in claim 2, wherein the laser includes an operating mode to expose the photosensitive layers, in which it is operated with an average laser power in the order of magnitude of 100 mW and a repetition rate of 200 kHz to 1 MHz.

12. An arrangement as claimed in claim 10, wherein the laser includes a third operating mode to expose the photosensitive layers, in which it is operated with an average laser power in the order of magnitude of 100 mW and a repetition rate of 200 kHz to 1 MHz.

13. An arrangement as claimed in claim 2, wherein a galvanometer mirror unit is used as the deflection unit with a speed of deflection of 100 to 600 mm/s.

14. An arrangement as claimed in claim 12, wherein a galvanometer mirror unit is used as the deflection unit with a speed of deflection of 100 to 600 mm/s.

15. A method for processing an electric circuit substrate, using a laser with a wavelength between around 266 nm and around 1064 nm, a pulse repetition rate of between 1

kHz and 1 MHz, a pulse length of between 30 ns and 200 ns and an average laser power of between approximately 0.1 to approximately 5 W, comprising:

fixing and positioning the substrate on a work piece holder; and

setting the laser beam to at least one of the following operating modes,

a mode for drilling holes with an average laser power of 3 to 5 W, a repetition rate of around 10 to 30 kHz and a pulse length of around 30 to 50 ns,

a mode for at least one of structuring and removal of at least one of metallic and dielectric layers with an average laser power of 1 to 2 W, a repetition rate of around 50 to 90, and a pulse length of around 50 to 60 ns, and

a mode for exposure of a photosensitive layer with an average laser power of approaching 0.1 W, a repetition rate of 200 kHz to 1 MHz and a pulse length of approximately 100 to 200 ns; and

processing the substrate with the laser beam in the operating mode set, whereby the laser beam is moved with a galvo mirror deflection unit with a speed of 300 to 600 mm/s.

16. The method of claim 15, wherein the photosensitive layer in the operating mode for exposure is developed in a further step and afterwards, the non-exposed areas in the layer are removed.

17. The method of claim 15, wherein the mode for at least one of structuring and removal of at least one of metallic and dielectric layers includes a repetition rate of around 60 to 80 kHz.

18. The method of claim 15, wherein the mode for exposure of a photosensitive layer includes a pulse length of around 120 ns.

19. The method of claim 15, wherein a mode is set using a controller.

20. A method for processing a substrate, comprising:

setting a laser to at least one of the following operating modes,

a mode for drilling holes in the substrate with an average laser power of 3 to 5 W, a repetition rate of around 10 to 30 kHz and a pulse length of around 30 to 50 ns,

a mode for at least one of structuring and removing at least one of metallic and dielectric layers from the substrate with an average laser power of 1 to 2 W, a repetition rate of around 50 to 90, and a pulse length of around 50 to 60 ns, and

a mode for exposure of a photosensitive layer of the substrate with an average laser power of approaching 0.1 W, a repetition rate of 200 kHz to 1 MHz and a pulse length of approximately 100 to 200 ns; and

processing the substrate with the laser in the operating mode set.

21. The method of claim 20, further comprising moving a laser beam of the laser with a speed of 300 to 600 mm/s.

22. The method of claim 21, wherein the laser beam is moved with a galvo mirror deflection unit.

23. The method of claim 20, wherein the photosensitive layer in the operating mode for exposure is developed in a further step and afterwards, the non-exposed areas in the layer are removed.

24. The method of claim 20, wherein the mode for at least one of structuring and removing of at least one of metallic and dielectric layers includes a repetition rate of around 60 to 80 kHz.

25. The method of claim 20, wherein the mode for exposure of a photosensitive layer includes a pulse length of around 120 ns.

26. The method of claim 20, wherein a mode is set using a controller.

27. An arrangement for processing a substrate, comprising:

means for holding and positioning the substrate;

a laser of a wavelength between 266 nm and 1064 nm, and adapted to emit laser radiation in the following ranges of values,

a pulse repetition rate of between 1 kHz and 1 MHz,

a pulse length of 30 ns to 200 ns, and

an average laser power of around 0.1 to approximately 5W;

means for deflecting the laser at speeds of up to 600 mm/s; and

means for operating the laser, depending on an application for the laser, with different combinations of average laser power and repetition rates.

28. An arrangement as claimed in claim 27, wherein the laser has a wavelength of between 350 and 550 nm.

29. An arrangement as claimed in claim 27, wherein the laser includes a first mode of operation to remove layers, in which it is operated with an average laser power of around 1 to 2 W and a repetition rate of around 60 to 80 kHz.

30. An arrangement as claimed in claim 29, wherein the laser includes a second operating mode for drilling holes in metallic and dielectric layers of the circuit substrate, in which it is operated with an average laser power of 3 to 4 W and a repetition rate of 10 to 30 kHz.

31. An arrangement as claimed in claim 30, wherein the laser includes a third operating mode to expose the photosensitive layers, in which it is operated with an average laser power in the order of magnitude of 100 mW and a repetition rate of 200 kHz to 1 MHz.

32. An arrangement as claimed in claim 27, wherein a galvanometer mirror unit is used as the deflection means with a speed of deflection of 100 to 600 mm/s.

33. An arrangement as claimed in claim 27, wherein the laser is a UV laser with a 355 nm wavelength.

34. An arrangement as claimed in claim 27, further comprising an imaging unit.

35. An arrangement for processing a substrate, comprising:

a solid-state laser of a wavelength between 266 nm and 1064 nm, and adapted to emit laser radiation in the following ranges of values,

a pulse repetition rate of between 1 kHz and 1 MHz,

a pulse length of 30 ns to 200 ns, and

an average laser power of around 0.1 to approximately 5W;

a deflection unit, adapted to deflect the laser at speeds of up to 600 mm/s; and

a controller adapted to operate the laser, depending on an application for the laser, with different combinations of average laser power and repetition rates.